

G. R. S. IX-5]

Previous references.

Geo 9-15
1-3

File No. 9-15

1915

Serial Nos. 4, 5, 6, 7

(Geol.)

Later references.

Geo 13-17

Preserve
~~*Destroy*~~
15
(+2)

GENERAL AND REVENUE SECRETARIAT.

Serial Nos.

Part B for December 1916.

SUBJECT.

*Visit of Mr G. F. Adams Ch. Inspector
of Mines, India, to the Kolar Gold Fields.*

*G-7327-8 To the Chief Inspector of Mines
Director of Mines & Geol.*

*G. 7327-8 dated 2-12-16
Geol. 9-15-7*

*Records the views of of the Director of the Confidential Report of
the Ch. Inspector of Mines, India with the observation that the existing rules
are adequate & that Ch. Inspectors might submit definite proposals regarding
the need for more Inspectors if necessary.*

GENERAL AND REVENUE SECRETARIAT.

(Geologist

NOTES.

File No. 9-15.

FILE HEADING.

Visit of Mr. C. F. Adams, Chief Inspector of Mines in India
to the Kolar Gold Fields.

From

The F. A. Resident

No. 1813

Dated 15-3-16

Received 20-3-16

Diary No. 8253 }

Enclos. 8 Spare Copies. }

Serial No. 4

BRIEF ABSTRACT OF LETTER.

Forwards copies of a note by Mr. C. F. Adams, Chief Inspector
of Mines in India, on the result of his visit to the K. C. F. in September last
& requests that the note may be treated as confidential.

NOTES AND ORDERS.

1) Submitted for perusal. There is nothing to
A. H. S. Call for comment.
20-3-16.

2) After the file is read a few
copies will be sent to the Dept.

(H. Secy.)

H. S.
20/3-16

General and Revenue
Secretariat.

Genl File No. 9

of 1915-16

Serial
No.

3) Submitted for information with interesting portions marked -

4) In forwarding copies to the Director, attention may be marked to Mr. Adams' remarks (in the third paragraph from the last) as to the inadvisability of unduly lowering the responsibilities devolving on the management (Dewan)

N. M. S. D. S. D. S. D.
29/3/16

103
29/3-16

5) A copy of the note may be forwarded to the Director of Mines and his attention invited to the observations on page 4 of the note, as regards fixing increased responsibility on the management. The Director may be requested to report ^{what} steps he would take on the observations therein made.

6) I shall be glad if the General Secretary will also study Mr. Adam's note and put up suggestions at his leisure.

9. Sep

7) Draft

Dues

5/4

5.4.16

106

8) Draft memo for appl

103
9/4-16

H. Deeg. J -

9) Please in no answered & resubmit the file: on a separate letter note Mr. Deeg may favour me with his views.

Dues

103
11/4
12/4-16

NOTE—Contn. sheet.

General and Revenue
Secretariat.

Geol File No. 9

of 1915-16

Serial
No.

5

To The Director, D.M.C. No. Cr. 14190.D. 12-4-16.

Forwards a copy of the note referred to in Pt 4 & invites attention
to Mr Adams' observation in page 4 & requests to be forwarded with his
10) Rehearsed with reference to order in the above paragraph.

AHS km

13-4-16.

1) L. L. is now in course
of the instructions in para 9.

H. L. -

[Signature]
1/5-16

PTO
[Signature]

G. R. S. 12]

General and Revenue
Secretariat.

Govt File No. 9

of 1915-16.

Serial
No.

6 From the Director, Dept of Mines & Geology
No 3452- of 2.5.16

Submits a ~~note~~ report on the Con-
fidential Note prepared by Mr G F
Adams, Chief Inspector Mines in India

12) The papers on the subject are
before the Dy. Secy. dated in Contn
has

4/5/16

13) fl. Secy.)

109
4/5-16

14) A Statement of points requiring orders, if any, may be
put up.

Dues
11/1)

15) There is really no point requiring
Orders - The Ch. Insp. of Mines in
India has ^{made no definite suggestions, but} merely compared the
Inspection work compared in our
mines with similar work elsewhere
& he concludes much in our favour.
He has ^{generally} commented on Mr
Adams' views. —

If necessary The papers may be read
fl. Secy

109
12/7

16) The only point of importance requiring consideration is that
raised in the Secy's Note of 5/4/16 viz fixing increased
responsibility on the management of the Gold Mines. The
existing system & distribution of responsibility are not, ~~expressly~~

previous paper
attached

G. R. S. 12]

9631

General and Revenue
Secretariat.

File No. 9

of 1915-16.

Serial
No.

Condemned by Mr Adams. It is not easy to change the system after it has been in working order for several years.

17) Mr Adams suggests that the strength of the Inspectorate on the Field is inadequate. It is not necessary to consider the question of increasing the staff without definite recommendations to that effect from the Head of the Dept.

18) The question of asking the Gold Mines to ~~responsible~~ to share the responsibility for inspection with Govt may be considered on receipt of such an application.

19) At present no more seem needed.

B28
12.7.16

For
member
sewan

Dues argy Rao
12/7

12/7-16

In the 1st April 1916
the Dewan was in charge of
the Geological Dept
Dues
13/7

20) The first help should be
through me.

21) The consp. may rather
be recorded with the remark that
but agree with the view of the Director
that the existing rules provide for
the resp. of an answer manager, very
definitely laid.

22) As the need for
the Director may consider the power
more fully, and submit proposals
for increasing the staff in view of

23) Action may be taken as suggested by the

NOTE - Contn. sheet
294
14-7-16
Recd on 25.7.16
21/20/11/11

Serial
No.

24 Submitted with a draft.

488.

27-11-16.

B

vs Issue

ref 30/11/16

7 The Director, in charge, Dept of Mines
& Geology and the Chief Inspector
of Mines.

G 7327-8 D 2-12-15.

With ref to Sl 6, records the report
with the observation that the Govt. Agree
with the views of the Director that the
existing rules provide for the responsibility
of the owner or manager being adequately
fixed and states that, as regards the
need for more Inspectors, the Chief Insp^r
of mines may consider the question fully
and submit proposals for increasing
the staff if necessary.

6

CONFIDENTIAL.

No. 1813

2-8.

*one kindide copy pol 1825-
to be sent*

FROM

P. B. Warburton, Esq., I. C. S.,

FIRST ASSISTANT TO THE RESIDENT IN MYSORE.

DIARY NO. 8253

TO

The Dewan of Mysore.

1215-88 16	
SECTION	geol
FILE NO.	9-15
REMARKS	4

Dated Bangalore, 15th March 1916.

SIR,

A. Para. 2

With reference to Mr. D. M. Narasinga Rao's letter No. 191 Pol. dated the 12th August 1915, I am directed to forward a *copy of a ----- * with 7 spare copies. ¶ note by Mr. G. F. Adams, Chief Inspector of Mines in India, on the result of his visit to the Kolar Gold Fields in September last.

2. I am to request that the note may be treated as confidential.

I have the honour to be,

Sir,

Your most obedient servant,

an

For First Assistant Resident.

us

CONFIDENTIAL

Note on the Mysore Government Department of Mines with reference to its operation in the Kolar Goldfield.

When visiting the Kolar Goldfield in September 1915, I called at the Government of Mysore Mines Inspection Office, belonging to the Department of Mines and Geology. I have to express my thanks to Dr. W. F. Smeeth, the Head of the Department, and to Mr. R. Boequet, the Chief Inspector of Mines, for the kind way in which they placed at my disposal the necessary information for the compiling of this note.

I have gone with considerable interest into the question of Government inspection of mines on the Kolar field, because it is the first opportunity I have had of looking directly into what aims at following the continental system of inspection, as practised chiefly in Germany, and to a certain extent, I understand, in Belgium, the essential difference between it and the English system being that in the latter there are comparatively few Inspectors of Mines with the result that mines are inspected only partially and at long periods, the responsibility for the safety and for the discipline of the work persons being firmly fixed on the owner, agent and manager of the mine, while in the former system the number of Inspectors is large enough to admit of the Inspectors themselves seeing and satisfying themselves to a much greater extent that the mines are properly equipped and that work is carried out in accordance with the rules. Moreover, greater powers are vested in and larger responsibilities are thrown upon the Inspectors, and this system, therefore if carried out with logical completeness, tends to a diminution of responsibility on the part of the management, which deficiency is made up for by the increased supervision that the Inspectors are able to exercise.

The system in British India is essentially the English system. Up to quite recently there has only been one Chief Inspector and three Inspectors for the whole of British India, and even to-day the full staff only stands at one Chief Inspector, two Inspectors and two Junior Inspectors. At Kolar, on the other hand, there are two highly trained English Inspectors, one being the Chief Inspector and the other the Inspector of Mines, and one Indian Sub-Inspector, all resident on the field. As there are only five main producing mines and three non-producing mines at work, this may be said to be at the rate of practically one qualified officer for every three to four mines. Moreover, in addition, there is a professional Head of the Department of Mines and Geology resident at Bangalore, who visits the field occasionally and who is consulted on important matters.

The Chief Inspector of Mines informs me that he is generally able to be *underground* from 80 to 100 days a year, either for investigation of accidents or general inspection, chiefly the latter, and that the Inspector of Mines devotes on an average 150 days a year to this work, a third of the inspections being connected with the investigation of accidents. The Sub-Inspector of Mines' chief duty is the investigation of minor accidents. In this respect it should be pointed out that all accidents reported under the rules, whether fatal or serious, are inquired into, and as in 1913, one of the lowest in recent years, there were 47 fatal and 231 non-fatal (serious) accidents, it will be seen to what extent this duty, which has to take precedence over systematic inspection, takes up the time of the staff. In pursuance of his duty the Sub-Inspector of Mines goes to the Mines Hospital every day, immediately takes the depositions of any injured man and then proceeds to hold a further investigation, examining the necessary witnesses. It is not usual for him to proceed to the scene of every such accident, as in many cases this is not necessary. I am informed that he proceeds *underground* about 30 days in the year. Moreover, under the Mysore Mine Regulation certain occurrences, whether death or personal injury is caused or not, have to be reported to the Inspectors and are inquired into. The Chief Inspector informs me that a complete inspection of one mine is commenced and carried through until it is finished, extending in cases for weeks, and that at least one,

and perhaps more, such systematic inspection is made of every mine in the year. In addition to the above, surface inspections or visits to mining officers in connection with matters of importance are made almost daily by one or more of the Inspectors. It should be explained that in each of the larger mines a highly qualified English Mining Engineer is appointed as Superintendent in supreme control. Under him there is a Chief Underground Agent and a Chief Engineer, each with many assistants. There are also Electrical, chemical, ore treating and other departments, at all of which there are highly specialised European officials in charge. At Champion Reef mine alone there are 143 Europeans employed. With regard to the underground work in particular, there are several European Underground Agents in the mines daily every morning, and European shift bosses underground in the afternoon and night shifts.

The large staff of European officers has an important bearing on the working of the Regulation and rules made under it. In British India, as in England, responsibility, as I have remarked, is thrown on the management and if a fatal accident is caused by a breach of general rules, or general rules are found to be violated after repeated warnings, a prosecution is initiated by the Mines Department against the owner, agent or manager, either or all. It is, I think, fairly obvious that with the Superintendents, the large army of other European officers, and three Government Inspectors, all living on the field, the English and the British Indian system of more or less letting the management alone, and prosecuting them if they do wrong, would, at Kolar, result in a hopeless impasse. It is true that, as in the English and British Indian Acts, it is laid down that, in the case of any contravention of, or non-compliance with any rule by any person whomsoever, the Superintendent of the mine shall be liable to a penalty, as well as the person involved, unless he proves that he had taken all reasonable means by publishing and, to the best of his power, enforcing the said rule. It has however not been found necessary to enforce this section in a Court of law, and, as a matter of fact, no prosecution of a Superintendent has ever been taken and during the many years that the Department has existed, I am informed there have been very few prosecutions against a Chief Underground Agent or an Assistant Underground Agent, and those were only in consequence of fatal accidents, considered to be due to breaches of the general rules, for which they were held to be responsible personally. No prosecution, apart from an accident, has ever been taken against an European officer, though men in the position of European engine drivers and foremen have been prosecuted.

As a counterbalance, as far as the main idea of a Mines Department is concerned, which is the prevention of accidents, the important step is taken of making mistries or subordinate officials, who immediately overlook the coolies, and of whom a large army is maintained at each mine, and blasters, who fire the shots and are responsible for the shot firing, from the taking of the explosive at the surface to restoring at the surface what has not been used, pass an examination held by the Inspectors, Munshis being employed at the Mines, to teach them. On passing the examination each man receives a certificate, which can be cancelled by the Chief Inspector, and is cancelled if negligence is proved. The same important step is about to be taken with regard to the winding enginemen. The latter are very carefully and gradually trained at these mines rising up from being, first, cleaners and then drivers of small engines, before they are entrusted with the driving of the larger ones.

During the year 1913-14 no less than 560 mistries and 471 blasters were examined. As the examination of each applicant takes from a quarter of an hour to 20 minutes in the case of a smart man, and longer in the case of one more ignorant, it will be seen that a large portion of the time of the officers of the Department is taken up in the conducting of these examinations.

As a result of these certificates or rather as a part of this system, it appears to me that the policy of the Department, in the event of an accident, is to find out the workman or official directly responsible, and then for the Inspectors themselves to initiate a prosecution of the person concerned. This is quite in

keeping with the system as a whole, as opposed rather to the English and British Indian system of considering the management to be responsible and to be guilty until they can prove that they are not, and throwing upon the management the duty and responsibility of initiating a prosecution against a workman or official.

There is no doubt that the system of mines inspection as practised at Kolar is of the greatest assistance to the Superintendents in regard to the safety of the workmen. The Inspector of Mines, Mr. Beckwith, probably makes as many underground visits, spread over all the mines, in a year, as any one of the Superintendents, and probably if the underground inspectors at any one of the larger mines of all the three officers of the Mines Department were added, they would probably approach very nearly to half the number of inspections made by the Superintendent of that mine. The Inspector's underground inspections aggregate nearly 300 in the year, and as the great majority of these are made at the five larger mines it may be concluded that the average number of inspections at each of these mines amounts to fifty.

10 It is possible that the reason why prosecutions against the management have been comparatively few is that, as a result of the frequent inspections made by the Government Inspectors, defects are brought promptly to the notice of the management, who appear to be as anxious as possible and to spare no expense to safeguard the lives of the workpeople. The powers and rights of veto vested in the Inspectors may also be a contributory cause.

11 The system is certainly an excellent one, and there is no doubt that much loss of life and limb has been avoided by it.

12 As an example of the powers and right of veto vested in the Inspectors I would point out the following :—

- (a) He prescribes how the reef should be worked to support the surface and buildings thereon.
- (b) He may relax in certain cases the provisions of filling up surface excavations.
- (c) He may relax the condition that no person who has not a first class certificate shall drive a winding engine having cylinders more than 12 inches.
- (d) He may cancel certificates given by him to blasters, mistries and engine men.
- (e) He may exempt small winding gears and hoists from the provisions requiring daily examinations.
- (f) No winding plant can be used for raising or lowering persons either at the big surface shafts or at the many underground shafts without his sanction, and before giving his sanction he must satisfy himself that all the winding, landing and other shaft arrangements are in order and in compliance with the various rules. At all such shafts he fixes the maximum number of persons allowed to travel in the cage or other conveyances.
- (g) He sanctions certain officers and workmen riding in shafts which are not usually used for the winding of persons.
- (h) He may sanction the use of a single linked chain for raising and lowering persons.
- (i) No ladders shall have a steeper inclination than 80° with the horizontal, except under special circumstances and with his consent.
- (j) He has to approve of the position and construction of every powder magazine.

- (k) In certain cases magazines may be constructed underground, but only with his sanction, and under such conditions as he may impose.
- (l) Not more than one kind of detonators can be used in a mine, except with his permission.
- (m) His permission must be obtained for the firing of more than a certain number of shot holes under certain conditions.
- (n) Stipulated hours of work of winding enginemen cannot be exceeded, without his permission such permission is frequently applied for by telephone.
- (o) His permission is necessary for the exemption of certain of the electricity rules.
- (p) He issues certificates to relieve the proprietor of a mine from further responsibilities after the latter has, in his opinion, complied with the rules with regard to the abandonment of a mine.
- (q) He has to send a report of every investigation he makes into a fatal accident or accident due to a breach of the rules to the magistrate.
- (r) All special sanctions under the Rules must be given in writing.

It should be pointed out that the above powers are not conferred on the Sub-Inspector, whose normal duty is to report to his superiors, who take the necessary action,

It will be seen from the above how very much more the daily carrying on of the mine is subject to the orders of an Inspector than under the English or British Indian system. Both systems have their good points and are to be preferred according to the different conditions under which the work of inspection has to be carried out. The main point, as it seems to me, is to avoid falling between two stools, that is to say, putting powers and responsibilities into the hands of the Inspectors and thereby inevitably relieving the management of a certain amount of responsibility, without having a large enough staff of Inspectors to be able to carry out such duties and responsibilities. Even in the Kolar Field the existing staff is inadequate for carrying out the system completely. The amount of supervision which can be maintained is due to the fact that the mines are confined to a small area and would be impossible of realisation if the mines were widely separated. The conditions in British India are such that a very large number of Inspectors would be required.

It should be noted that mining at Kolar, from the nature of the mines, is of a much more dangerous character than at the great majority of the mines in British India.

I attach a comparative note on Mine Inspection kindly given me by the Head of the Department.

G. F. Adams,—21-12-15,

Chief Inspector of Mines in India.

COMPARATIVE NOTES ON MINE INSPECTION.

NOTE MADE IN 1904.

Metalliferous Mines.

Country.	Year.	Number of Inspectors.	Number of persons employed.		Number of persons killed and injured.	
			Total.	Number per Inspector.	Total.	Number per Inspector.
Victoria ...	1903	14	25,669	2,333	107	9'8
New-South Wales.	1903	9	23,442	2,605	117	13'0
Western Australia	1902	9	21,210	2,356	171	19'0
Transvaal ...	1902	12	34,352	2,863	277	23'0
Mysore ...	1903	2	27,355	13,677	244	122'0

In the Transvaal and the Colonies the Inspectors include a number of qualified Inspectors of Mining Machinery. The figures for the Transvaal for 1902 are unsatisfactory as work was not in full swing owing to the results of the war.

NOTE MADE IN 1912.

Metalliferous Mines—Year 1911.

Country.	Number of Inspectors.	Number of persons employed.		Number of fatal and serious accidents.	
		Total.	Number per Inspector.	Total.	Number per Inspector.
Transvaal ...	26	2,18,109	8,388	2,183	84
Mysore ...	2½	26,772	10,710	374	150

In Mysore there are 2 Inspectors and a Junior Assistant in training for whom the half is allowed. The 26 Inspectors in the Transvaal include 12 Inspectors of Machinery.

NOTE 1915.

All mines including Gold, Coal and Base Minerals:

YEAR—1914.

Country.	Number of Inspectors.	Number of persons employed.		Number of fatal and serious accidents.	
		Total.	Number per Inspector.	Total.	Number per Inspector.
Union of South Africa.	45	237,485	5,277	2,631	58
Mysore ...	3	27,574	9,251	227	76
Do. ...	Average for 3 years 1912—1914.			263	88

In South Africa the 45 Inspectors include 20 Inspectors of Mining Machinery but excludes the Government Mining Engineer who is Head of the Department.

In Mysore there are 2 Inspectors and 1 Sub-Assistant who has been rated as an Inspector for the above Table. The number of accidents for the year 1914 is considerably below the average.

CONFIDENTIAL

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- (c) He may relax the condition that no person who has not a first class certificate shall drive a winding engine having cylinders more than 12 inches.
- (d) He may cancel certificates given by him to blasters, mistries and engine men.
- (e) He may exempt small winding gears and hoists from the provisions requiring daily examinations.
- (f) No winding plant can be used for raising or lowering persons either at the big surface shafts or at the many underground shafts without his sanction, and before giving his sanction he must satisfy himself that all the winding, landing and other shaft arrangements are in order and in compliance with the various rules. At all such shafts he fixes the maximum number of persons allowed to travel in the cage or other conveyances.
- (g) He sanctions certain officers and workmen riding in shafts which are not usually used for the winding of persons.
- (h) He may sanction the use of a single linked chain for raising and lowering persons.
- (i) No ladders shall have a steeper inclination than 80° with the horizontal, except under special circumstances and with his consent.
- (j) He has to approve of the position and construction of every powder magazine.

- (k) In certain cases magazines may be constructed underground, but only with his sanction, and under such conditions as he may impose.
- (l) Not more than one kind of detonators can be used in a mine, except with his permission.
- (m) His permission must be obtained for the firing of more than a certain number of shot holes under certain conditions.
- (n) Stipulated hours of work of winding enginemen cannot be exceeded without his permission such permission is frequently applied for by telephone.
- (o) His permission is necessary for the exemption of certain of the electricity rules.
- (p) He issues certificates to relieve the proprietor of a mine from further responsibilities after the latter has, in his opinion, complied with the rules with regard to the abandonment of a mine.
- (q) He has to send a report of every investigation he makes into a fatal accident or accident due to a breach of the rules to the magistrate.
- (r) All special sanctions under the Rules must be given in writing.

It should be pointed out that the above powers are not conferred on the Sub-Inspector, whose normal duty is to report to his superiors, who take the necessary action.

It will be seen from the above how very much more the daily carrying on of the mine is subject to the orders of an Inspector than under the English or British Indian system. Both systems have their good points and are to be preferred according to the different conditions under which the work of inspection has to be carried out. The main point, as it seems to me, is to avoid falling between two stools, that is to say, putting powers and responsibilities into the hands of the Inspectors and thereby inevitably relieving the management of a certain amount of responsibility, without having a large enough staff of Inspectors to be able to carry out such duties and responsibilities. Even in the Kolar Field the existing staff is inadequate for carrying out the system completely. The amount of supervision which can be maintained is due to the fact that the mines are confined to a small area and would be impossible of realisation if the mines were widely separated. The conditions in British India are such that a very large number of Inspectors would be required.

It should be noted that mining at Kolar, from the nature of the mines, is of a much more dangerous character than at the great majority of the mines in British India.

I attach a comparative note on Mine Inspection kindly given me by the Head of the Department,

G. F. Adams,—21.12.15,

Chief Inspector of Mines in India.

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Mysore ...	1903	2	27,355	13,677	244	122'0

In the Transvaal and the Colonies the Inspectors include a number of qualified Inspectors of Mining Machinery. The figures for the Transvaal for 1902 are unsatisfactory as work was not in full swing owing to the results of the war.

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In South Africa the 45 Inspectors include 20 Inspectors of Mining Machinery but excludes the Government Mining Engineer who is Head of the Department.

In Mysore there are 2 Inspectors and 1 Sub-Assistant who has been rated as an Inspector for the above Table. The number of accidents for the year 1914 is considerably below the average.

CONFIDENTIAL

Note on the Mysore Government Department of Mines with reference to its operation in the Kolar Goldfield.

When visiting the Kolar Goldfield in September 1915, I called at the Government of Mysore Mines Inspection Office, belonging to the Department of Mines and Geology. I have to express my thanks to Dr. W. F. Smeeth, the Head of the Department, and to Mr. R. Bocquet, the Chief Inspector of Mines, for the kind way in which they placed at my disposal the necessary information for the compiling of this note.

I have gone with considerable interest into the question of Government inspection of mines on the Kolar field, because it is the first opportunity I have had of looking directly into what aims at following the continental system of inspection, as practised chiefly in Germany, and to a certain extent, I understand, in Belgium, the essential difference between it and the English system being that in the latter there are comparatively few Inspectors of Mines with the result that mines are inspected only partially and at long periods, the responsibility for the safety and for the discipline of the work persons being firmly fixed on the owner, agent and manager of the mine, while in the former system the number of Inspectors is large enough to admit of the Inspectors themselves seeing and satisfying themselves to a much greater extent that the mines are properly equipped and that work is carried out in accordance with the rules. Moreover, greater powers are vested in and larger responsibilities are thrown upon the Inspectors, and this system, therefore if carried out with logical completeness, tends to a diminution of responsibility on the part of the management, which deficiency is made up for by the increased supervision that the Inspectors are able to exercise.

The system in British India is essentially the English system. Up to quite recently there has only been one Chief Inspector and three Inspectors for the whole of British India, and even to-day the full staff only stands at one Chief Inspector, two Inspectors and two Junior Inspectors. At Kolar, on the other hand, there are two highly trained English Inspectors, one being the Chief Inspector and the other the Inspector of Mines, and one Indian Sub-Inspector, all resident on the field. As there are only five main producing mines and three non-producing mines at work, this may be said to be at the rate of practically one qualified officer for every three to four mines. Moreover, in addition, there is a professional Head of the Department of Mines and Geology resident at Bangalore, who visits the field occasionally and who is consulted on important matters.

The Chief Inspector of Mines informs me that he is generally able to be *underground* from 80 to 100 days a year, either for investigation of accidents or general inspection, chiefly the latter, and that the Inspector of Mines devotes on an average 150 days a year to this work, a third of the inspections being connected with the investigation of accidents. The Sub-Inspector of Mines chief duty is the investigation of minor accidents. In this respect it should be pointed out that all accidents reported under the rules, whether fatal or serious, are inquired into, and as in 1913, one of the lowest in recent years, there were 47 fatal and 231 non-fatal (serious) accidents, it will be seen to what extent this duty, which has to take precedence over systematic inspection, takes up the time of the staff. In pursuance of his duty the Sub-Inspector of Mines goes to the Mines Hospital every day, immediately takes the depositions of any injured man and then proceeds to hold a further investigation, examining the necessary witnesses. It is not usual for him to proceed to the scene of every such accident, as in many cases this is not necessary. I am informed that he proceeds underground about 30 days in the year. Moreover, under the Mysore Mine Regulation certain occurrences, whether death or personal injury is caused or not, have to be reported to the Inspectors and are inquired into. The Chief Inspector informs me that a complete inspection of one mine is commenced and carried through until it is finished, extending in cases for weeks, and that at least one,

and perhaps more, such systematic inspection is made of every mine in the year. In addition to the above, surface inspections or visits to mining officers in connection with matters of importance are made almost daily by one or more of the Inspectors. It should be explained that in each of the larger mines a highly qualified English Mining Engineer is appointed as Superintendent in supreme control. Under him there is a Chief Underground Agent and a Chief Engineer, each with many assistants. There are also Electrical, chemical, ore treating and other departments, at all of which there are highly specialised European officials in charge. At Champion Reef mine alone there are 143 Europeans employed. With regard to the underground work in particular, there are several European Underground Agents in the mines daily every morning, and European shift bosses underground in the afternoon and night shifts.

The large staff of European officers has an important bearing on the working of the Regulation and rules made under it. In British India, as in England, responsibility, as I have remarked, is thrown on the management and if a fatal accident is caused by a breach of general rules, or general rules are found to be violated after repeated warnings, a prosecution is initiated by the Mines Department against the owner, agent or manager, either or all. It is, I think, fairly obvious that with the Superintendents, the large army of other European officers, and three Government Inspectors, all living on the field, the English and the British Indian system of more or less letting the management alone, and prosecuting them if they do wrong, would, at Kolar, result in a hopeless impasse. It is true that, as in the English and British Indian Acts, it is laid down that, in the case of any contravention of, or non-compliance with any rule by any person whomsoever, the Superintendent of the mine shall be liable to a penalty, as well as the person involved, unless he proves that he had taken all reasonable means by publishing and, to the best of his power, enforcing the said rule. It has however not been found necessary to enforce this section in a Court of law, and, as a matter of fact, no prosecution of a Superintendent has ever been taken and during the many years that the Department has existed, I am informed there have been very few prosecutions against a Chief Underground Agent or an Assistant Underground Agent, and those were only in consequence of fatal accidents, considered to be due to breaches of the general rules, for which they were held to be responsible personally. No prosecution, apart from an accident, has ever been taken against an European officer, though men in the position of European engine drivers and foremen have been prosecuted.

As a counterbalance, as far as the main idea of a Mines Department is concerned, which is the prevention of accidents, the important step is taken of making mistries or subordinate officials, who immediately overlook the coolies, and of whom a large army is maintained at each mine, and blasters, who fire the shots and are responsible for the shot firing, from the taking of the explosive at the surface to restoring at the surface what has not been used, pass an examination held by the Inspectors, Munshis being employed at the Mines, to teach them. On passing the examination each man receives a certificate, which can be cancelled by the Chief Inspector, and is cancelled if negligence is proved. The same important step is about to be taken with regard to the winding enginemen. The latter are very carefully and gradually trained at these mines rising up from being, first, cleaners and then drivers of small engines, before they are entrusted with the driving of the larger ones.

During the year 1913-14 no less than 560 mistries and 471 blasters were examined. As the examination of each applicant takes from a quarter of an hour to 20 minutes in the case of a smart man, and longer in the case of one more ignorant, it will be seen that a large portion of the time of the officers of the Department is taken up in the conducting of these examinations.

As a result of these certificates or rather as a part of this system, it appears to me that the policy of the Department, in the event of an accident, is to find out the workman or official directly responsible, and then for the Inspectors themselves to initiate a prosecution of the person concerned. This is quite in

keeping with the system as a whole, as opposed rather to the English and British Indian system of considering the management to be responsible and to be guilty until they can prove that they are not, and throwing upon the management the duty and responsibility of initiating a prosecution against a workman or official.

There is no doubt that the system of mines inspection as practised at Kolar is of the greatest assistance to the Superintendents in regard to the safety of the workmen. The Inspector of Mines, Mr. Beckwith, probably makes as many underground visits, spread over all the mines, in a year, as any one of the Superintendents, and probably if the underground inspectors at any one of the larger mines of all the three officers of the Mines Department were added, they would probably approach very nearly to half the number of inspections made by the Superintendent of that mine. The Inspector's underground inspections aggregate nearly 300 in the year, and as the great majority of these are made at the five larger mines it may be concluded that the average number of inspections at each of these mines amounts to fifty.

It is possible that the reason why prosecutions against the management have been comparatively few is that, as a result of the frequent inspections made by the Government Inspectors, defects are brought promptly to the notice of the management, who appear to be as anxious as possible and to spare no expense to safeguard the lives of the workpeople. The powers and rights of veto vested in the Inspectors may also be a contributory cause.

The system is certainly an excellent one, and there is no doubt that much loss of life and limb has been avoided by it.

As an example of the powers and right of veto vested in the Inspectors I would point out the following :—

- (a) He prescribes how the reef should be worked to support the surface and buildings thereon.
- (b) He may relax in certain cases the provisions of filling up surface excavations.
- (c) He may relax the condition that no person who has not a first class certificate shall drive a winding engine having cylinders more than 12 inches.
- (d) He may cancel certificates given by him to blasters, mistries and engine men.
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G. F. Adams;—21.12.15;

Chief Inspector of Mines in India.

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G. R. S. 26]

SUBJECT.....
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Diary No. of letter replied to.....

General and Revenue Secretariat

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191 .

Date of issue

12/4/16

Signed by

Mr B. S. Rao

Geol Section

File No. 9-15

Serial No. 5

No. 3 14190/1916

To

The Director

Dept of Mines &
Geology

Sir

I am directed to
forward herewith for
your information a
copy of a "Confidential
Note" on the Mysore
Joint Dept of Mines
with reference to its
operations in the
Kolar Gold Field"

over.



by W G F. Adams, Chief
Inspector of Mines in India
at the request of the Joint
Board of Inquiry his
recent inspection of
the Kolar Mines -

I am to invite your
kind attention to Mr
Adams' observations
on page 4 of the list, as regards fixing due
responsibility on the
management of the Mines
~~upon the Mines Officer concerned~~
~~responsibility in the~~
~~matter of conduct of~~
~~mining operations which~~
~~is now stated to have been~~
~~the Joint Inspector of~~
~~Mines~~ had to request you to favour Govt with your
views in the matter
What steps you would
propose to take in the
observations made by
W Adams.

List of enclosures.

True

11/4

Copied by

Examined by

I have seen

Very
Yours

CONFIDENTIAL.

D.M.G. 12]

GPB-2,000-23-3-15

No. 3452
8a

BANGALORE, 2nd May 1916

DIARY NO. 9631

FROM

DR. W. F. SMEETH, M.A., D.Sc., A.R.S.M., &c.,
Director, Department of Mines and Geology,
Mysore State.

15-5-16
Geol
9-15
1

TO

D.M. Narasinga Rao, Esquire, B.A., B.L.,
Secretary to the Government of His Highness
the Maharaja of Mysore,
General Department.

SIR,

I have the honour to acknowledge the receipt of your letter No.G.14190/Geol.9-15-5, dated 12th April 1916, forwarding a copy of a confidential note by Mr.G.F. Adams, Chief Inspector of Mines in India.

2. The whole subject was very fully discussed with Mr. Adams during his visit to the Kolar Field by the Inspectors of Mines and myself and we were very glad to have the benefit of his experience which relates essentially to coal mining. Mr. Adams expressed himself as equally interested in the method of working and inspection of deep metalliferous mines as exemplified at Kolar.

3. I do not altogether agree with Mr. Adams that the system of inspection at Kolar "aims at following the continental system of inspection, as practiced chiefly in Germany." It falls very far short of any such elaborate system and aims rather at following what might be called the Colonial System for deep metalliferous mines as practised in the Transvaal and the British Colonies. Our mining rules are modelled on those

of

of the Transvaal and are very similar to them though, with our limited staff, we are unable to carry them out so fully.

4. In the "Comparative Notes" attached to Mr. Adams' Note it will be seen that the staff in Mysore is comparatively much smaller than in the other countries where similar conditions prevail and a similar system is followed. This however is almost unavoidable in a comparatively small country and is to some extent compensated by the fact that the greater part of the work is confined to a single district.

5. We cannot however compare mines by the mere number of the separate mining Companies. The Kolar Mines rank amongst the largest and deepest in the world and a single one of the larger mines is equal in point of labour, output, equipment and extent to many a Colonial mining field embracing a dozen or more mines. In British India the vast majority of mines are shallow with simple equipment and few difficult problems arise and the deepest are probably comparable to what the Kolar Mines were some twenty years ago. For such simple shallow mines comparatively little inspection is necessary and if an Inspector can visit them only once in every one or two years it makes little difference one way or the other.

6. The Inspectors in British India confine themselves chiefly to the larger and more important mines just as in Mysore we devote most attention to important work on the Kolar Field while leaving the smaller works in the District - in which an accident or a difficult problem is rare - very much alone. On the other hand Mr. Adams has frequently insisted that they have not nearly enough Inspectors in British India even for the style of inspection which they aim at following and there has been a growing feeling during the past few years that Inspection work in England and in America is very inadequate to modern conditions and to the demands of the public in regard to safety.

7. It is becoming more recognized every day that the Government of a country owes a duty to the mine workers which cannot be fulfilled

by

by mere occasional complaints or prosecutions in respect of defects which have been permitted to continue or which have led to accidents but requires sufficient inspection and control to secure the removal of obvious defects before accidents occur.

Take the case of a mine in British India to which the Inspector makes a visit, after a lapse of, say a year or more, without any inspection, and finds something dangerous to life or which has caused an accident which should have been avoided by obvious measures. Even supposing the Manager to be convicted and fined for negligence the conviction will do no good to those who have been injured nor does it relieve the Government of the responsibility of having allowed something which was obviously dangerous to remain a menace to public safety for all that time.

8. As to the responsibility of the owner or Manager of a mine in the case of defects which may be brought to notice, or which may have led to accidents, the existing Mysore Rules provide for this amply.

Rule 221 reads as follows:-

" The Proprietor, Agent and Superintendent shall provide for the safety and proper discipline of the men employed above and below ground and appoint such persons as may be necessary for carrying out the provisions of these rules, and, in the case of any contravention of, or non-compliance, with, these rules by any person whatsoever, the Proprietor, Agent and Superintendent shall each, unless he proves that he has taken all reasonable means by publishing and to the best of his power enforcing these rules to prevent such contravention or non-compliance, be deemed to have committed a breach of these rules. It shall be the duty of the Superintendent to prosecute any person employed on the mine who is guilty of a breach of these rules, except in cases which are so trivial that

that a prosecution is inadvisable."

So far we have not had a clear case in which the prosecution of a Superintendent has been called for, but if a case arose in which a Superintendent wilfully or negligently failed to comply with the reasonable requirements of the rules, after due warning, or did not enforce them to the best of his power he would certainly be prosecuted. It must be observed however that the Superintendent or General Manager of a large mine, which may be equal in extent and responsibility to a dozen or more small mines, is in a very different position to the Manager of a small mine who is in direct executive control of the whole work. The Superintendent of one of our large mines has a large number of officers and officials under him who are in charge of various sections of work and many of whom are of the standing and capacity of individual Managers of smaller mines. It would be unreasonable and impracticable to hold the Superintendent personally responsible for the work of all these officers and officials unless he refuses to afford them proper facilities or fails to publish and enforce the rules. We do not find this to be the case and Superintendents have proved most anxious and willing to carry out all reasonable rules and suggestions to the best of their ability and resources.

9. We endeavour to secure safety and prevent accidents and our policy has been to secure the co-operation of the Superintendents and other officers and I cannot think of a case in which a Superintendent has proved obstructive or unwilling to help. Our inspection does not in any way relieve the Superintendent of final responsibility, but it undoubtedly helps in locating responsibility and in maintaining a higher standard of security than could otherwise be expected. Under our rules and inspections the character of the mining work, methods and equipment have been altered and improved and the conditions of the mining work are incomparably better than they were even 10 or 15 years ago. I know of no mines in which so much money and labour

is

is devoted to securing safety and I am satisfied that every Superintendent would welcome any reasonably practical suggestion for further improvement.

10. Mr. Adams has been representing the need for more Inspectors in British India although, as I have pointed out, the majority of their mines are comparatively simple and shallow with few accidents and little need for frequent visits. If they ever get into deep mining with elaborate equipment and difficult and dangerous problems to face, such as exist on the Kolar Field, their staff will have to be largely increased and public opinion will demand it. The mere legal responsibility of the owner or Manager with occasional prosecutions and fines in case of a mishap; or wilful negligence, will not meet the case and the demand for more and closer inspection and greater attention to security has been growing more and more insistent during the past few years owing very largely to the increasing depth and difficulty of mining work.

I have the honour to be,

Sir,

Your most obedient servant,



Director,

C.N.

Department of Mines & Geology.



Diary No. of letter replied to _____

GENERAL AND REVENUE
SECRETARIAT.
()

Proceedings of the Government of His Highness
the Maharaja of Mysore

Geol File No. 9-15

Serial No. 7

READ—

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191 .

P.V.O.

Date of issue

2 - 12 - 16

Signed by

Mr. J. E. Jayaraman
J.E.

Letter no 3452 dated 2nd May 1916
from the Director, Dept of Mines & Geology,
submitting his views regarding the question
of fixing increased responsibility on the
management of the Gold Mines in

~~ORDER THEREON.~~ No.
Mysore, referred to in the note prepared by
Mr. G. F. Adams, Chief Inspector of Mines
in India, as a result of his visit to the
Kolar Gold Fields in September 1915 and
an increase in
suggesting that the inspection staff on the

P. J. over.

SUBJECT.

1/12

Fields ~~has to be increased.~~

Order:- 673.27-8

Recorded with the observation

that Govt agree with the views of the
Director that the existing rules provide
for the responsibility of the owner or
manager being adequately fixed in
~~the case of defects which may be brought
to notice, or which may have led to accidents.~~

paras 20 to 23 of the notes.

1. As regards the need for more
inspectors, the Chief Inspector of Mines
may consider the ^{question} ~~question~~ ^{in consultation} ~~in consultation~~
~~with the Director (in charge)~~ and submit
definite proposals for increasing the staff
if necessary.

Subject to approval

f 24/30/11/10
Secy to Govt
Gt Dept.

To The Chief Inspector of Mines

The Director (in charge), Dept of Mines
Geology.

15